

Increase of stillbirth and decrease of late preterm infants during the COVID-19 pandemic lockdown

Italy was the first country in Europe violently affected by the COVID-19 pandemic. The total lockdown of 3 months was necessary and effective to stem the infection. However, it has determined a series of effects that changed the life of millions of people. The objective of this retrospective study is to analyse some perinatal data during the lockdown and to compare them with the same months of 2019. The data refer to the Lazio region where Rome is located with 5.8 million people and where about 10% of Italian births take place every year.

We obtained data from the Lazio hospital discharge database, which records perinatal information on all newborns. We have considered only singletons to limit the influence of other determinants of premature birth. The total numbers of all very preterm, late preterm, at term, late term, stillbirths, total births and the numbers and per cents of caesarean delivery were determined in the lockdown period (March, April, May 2020) and in the same period of 2019. All non-viable at birth with gestational age ≥ 22 weeks were considered as stillbirths and abortions for late termination for fetal abnormalities were excluded. Gestational age at birth was categorised in complete weeks. Group comparison were made using a z-test of two proportions (prtest STATA command) to perform tests on the equality of proportions in large-sample statistics.

The results in table 1 show with statistical significant an increase of about three times in stillbirths, a decrease in the percentage of late preterm births and an increase in full-term births. There was an

increase but not significant in very preterm births and a non-significant reduction in caesarean sections.

The decrease in the number of births during the lockdown period is in line with the progressive denatality that has been recorded for >10 years.¹ The incidence rates of SARS-CoV-2-positive women who gave birth in Central Italy is 1/1000.² The threefold increase in stillbirths observed by us compared with the previous year does not seem a direct consequence of COVID-19 infection. We believe it could be a consequence of induced life changes from the lockdown and in particular caused by reduced visits to hospitals due to the fear of contracting the COVID-19 infection. This behaviour has led to the postponement or suspension of all medical checks even in pregnant women.³ The significant decrease of late preterm infants during the lockdown period could be attributed to obliged rest at home due to the lockdown, reduced physical activity, reduced infection load and increased hygiene.⁴ This is also the possible reason for the increase in term births. A strength of this study is that all those born in the Lazio region were considered. Limitations of this study include retrospective nature, lack of information on stillbirths, possible obstetric pathologies and the fact that the data refer only to the Lazio region where only 10% of the Italian population lives. A nationwide survey is desirable to confirm these data. The differences observed in the various countries may depend on the different times of impact of the COVID-19 infection and the difference in the local health organisations.^{3,4}

Mario De Curtis ,¹ Leonardo Villani ,² Arianna Polo³

¹Maternal and Child Health Department, University of Rome La Sapienza, Rome, Italy

²Istituto di Sanità Pubblica—Sezione di Igiene, Università Cattolica del Sacro Cuore Facoltà di Medicina e Chirurgia, Rome, Italy

³Direzione Salute e Integrazione Sociosanitaria Regione Lazio, Regione Lazio, Rome, Italy

Correspondence to Professor Mario De Curtis, Maternal and Child Health Department, University of Rome La Sapienza, Roma 161, Italy; mario.decurtis@uniroma1.it

Contributors All authors contributed to the study conception and design. Material preparation and data collection were performed by MDC and AP. AP performed the statistical analysis. The first draft of the manuscript was written by MDC and LV. MDC commented on the latest version of the manuscript and supervised the study. All authors read and approved the final manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.



OPEN ACCESS

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

© Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.



To cite De Curtis M, Villani L, Polo A. *Arch Dis Child Fetal Neonatal Ed* Epub ahead of print: [please include Day Month Year]. doi:10.1136/archdischild-2020-320682

Accepted 21 October 2020

Arch Dis Child Fetal Neonatal Ed 2020;0:F1.
doi:10.1136/fetalneonatal-2020-320682

ORCID iDs

Mario De Curtis <http://orcid.org/0000-0001-9990-3071>
Leonardo Villani <http://orcid.org/0000-0001-9375-8731>

REFERENCES

- 1 ISTAT. Indicatori demografici per l'anno 2019. Statistich:1–10, 2020. Available: https://www.istat.it/it/files/2020/02/Indicatori-demografici_2019.pdf
- 2 Maraschini A, Corsi E, Salvatore MA, et al. Coronavirus and birth in Italy: results of a national population-based cohort study. *Ann Ist Super Sanita* 2020;56:378–89.
- 3 Khalil A, von Dadelszen P, Draycott T, et al. Change in the incidence of stillbirth and preterm delivery during the COVID-19 pandemic. *JAMA* 2020;324. doi:10.1001/jama.2020.12746. [Epub ahead of print: 10 Jul 2020].
- 4 Hedermann G, Hedley PL, Bækvad-Hansen M, et al. Danish premature birth rates during the COVID-19 lockdown. *Arch Dis Child Fetal Neonatal Ed* 2020:F1–3.

Table 1 Gestation categories during the lockdown (March-April-May) 2020 and the same period in 2019

Gestational age (weeks)	2019		2020		P value
	N	(%)	N	(%)	
Very preterm (<32 weeks)	50	(0.55)	61	(0.79)	0.06
Late preterm (32–36 weeks+6 days)	537	(5.93)	358	(4.62)	<0.001
Term (37–41 weeks+6 days)	8362	(92.37)	7221	(93.11)	0.01
Late term >42 weeks+0	104	(1.15)	115	(1.48)	0.06
Total livebirths	9053		7755		–
Caesarean section	3278	(36.2)	2758	(35.5)	–
Stillbirths (N, per mille births)	10	(1.07)	26	(3.23)	0.0017

Single (N and % live births), caesarean section and stillbirths.